Working
with Tables

Objectives

▶ **Plan a table**
▶ **Create a simple table**
▶ **Span rows**
▶ **Format borders**
▶ **Modify table backgrounds**
▶ **Change table dimensions**
▶ **Align table contents**
▶ **Position page elements**

Although paragraphs are a useful way to present most information on a Web page, certain contents require other formats. HTML includes extensive support for one of the most common alternate layouts: the **table**, which allows you to present information in a grid. A table is useful for creating a compact list of the traits or attributes of all the items in a set. Jaime Chavez works in the Information Systems department at Nomad Ltd, a travel and sporting goods company. His current project is to add information to the company Web site about each of the tours that Nomad Ltd offers. Tour information formatted with a table allows Web page users to easily compare different aspects of each tour.

Planning a Table

A table is a useful way to summarize many types of data, including results from a database search or the differences among a fixed set of choices. As shown in Figure E-1, table data is organized into rows and columns; a **row** is a single horizontal line of data, while a **column** is a single vertical line of data. The intersection of a row and a column is a single unit of table data, called a **cell**. While all Web page tables use a standard layout, many other aspects of tables are customizable. You can tailor tables to fit the data they contain, as well as tailor the designs of the Web pages where the tables are located. ✐ As he prepares to create the table for the Nomad Ltd tours Web page, Jaime plans his table layout. HTML allows you to control many aspects of a table's appearance. Those characteristics are shown in Figure E-2, and include:

Details

Structure and border

You can customize a table to include exactly the number of columns and rows that your data requires. You also can modify a table's structure so that one or more cells are part of multiple rows or columns. By default, each cell is slightly separated from the cells that surround it. To make the boundaries between cells clearer, you can add cell borders to a table. HTML allows you to customize border color and thickness.

Alignment

Just as with standard Web page elements or paragraphs of text, you can align cell contents along the cell's right or left edges, or centered between the two edges. Additionally, you can set the vertical alignment flush with the top border or the bottom border, or centered between the two borders.

Background

By default, a Web page table is transparent, showing the same background image or color as the Web page. However, tables can accommodate a custom background color, which you can apply to the entire table, specific rows, or individual cells.

Dimensions

In addition to customizing the number of rows and columns in the table structure, you can specify the sizes of table elements, as well as different aspects of the spacing between them. You can set the entire table to a fixed width or height, or you can specify that the browser automatically resize it to a specific percentage of the window size. You also can set the amount of blank space around the contents of each cell, as well as the distance between each cell.

Positioning

Because tables are so flexible and customizable, Web designers have found many uses for them. One of the most common uses of tables is to position page elements in specific locations on the page. You cannot create this type of layout solely with HTML tags such as <P> and <IMG>.

Column

Cell

Row

Positioned page elements

A guide to

Nomad Ltd

Nomad Ltd Tours

Customized border appearance

Tour Category	Tour Name	Length	Theme
ATHLETE Travel, relax, and play! Watch and take part in various sports.	Soccer Safari	15 days	Soccer clinics and matches
	Basking in Baseball	9 days	Baseball training camps
Arts Experience the world's traditional performing arts at their sources.	Viva Voce	15 days	Famous opera houses
	Theater Troupe	9 days	Country theater festivals
Leisure Relax and rejuvenate on quiet trips to secluded retreats.	Country Escape	8 days	Retreats in the countryside
	Urban Oases	10 days	Resorts in major cities

updated August 24, 2002

Background colors added row by row

Space around cell contents customized

Table centered within Web page

CLUES TO USE

Formatting cell contents

Although you can manipulate many aspects of a table's appearance, formatting table contents can be tricky. A browser treats the contents of each table cell as a separate window. As a result, table cells do not inherit any properties that you set for the page outside the table. For example, even if you change your page's font using a <FONT> tag at the start of the body section, text in the table is still formatted in the browser's default font. Though tedious, the only solution to implementing the HTML style changes for table data is to add code—such as <FONT>..</FONT> tags—to the contents of each cell that you want to change. Although this restriction seems significant, Web page designers generally find that the power and versatility of Web page tables more than makes up for their limitations.

HTML

Creating a Simple Table

While a table is a compact way to show relationships between information, each separate unit of information requires a separate HTML code. As a result, the code to create even a simple table is longer that most other basic HTML, and can include several nested layers of tags. The main tag pair for creating a table is <TABLE>..</TABLE>. Between these tags, you add codes for each row using <TR>, which is short for "table row," and for each cell using <TD>, which is short for "table data." The cells in the first row of most tables use an additional tag: <TH>, which is short for "table header." <TH> formats the contents of a cell as centered and boldface, making the column headings stand out from the contents of the cells below them. You also can add a table caption, which is centered above the table by default, using the <CAPTION>..</CAPTION> tag pair. However, when a table is the only element on a Web page, a large heading is usually a better choice for labeling the table contents. Table E-1 summarizes the HTML tags used to create a table. Jaime has created a Web page for Nomad Ltd tours information, and has received a text file from the marketing department. The file contains the contents of a table that describes the tours. He copies the table text into his Web page and formats it with the HTML table tags.

Steps 1234

1. Start your text editor, then open the file **HTM E-1.txt**
This file contains the tours table text that Jaime received from the marketing department, along with link tags that he added to each of the tour names.

2. Select **all the text in the file**, press **[Ctrl][C]** to copy it to the Clipboard, then close the file, if necessary

3. Open the file **HTM E-2.htm** in your text editor, then save it as a text document with the filename **nomad-e.htm**
This document contains headings and the Nomad Ltd logo.

4. Click the blank line below the text formatted with <H1>, press **[Enter]**, type **<TABLE BORDER>**, press **[Enter]**, press **[Ctrl][V]** to paste the table text from the Clipboard, press **[Enter]**, type **</TABLE>**, then press **[Enter]**
The BORDER attribute in the <TABLE> tag creates dividing lines between the cells.

5. Click at the end of the opening <TABLE> tag, press **[Enter]**, press **[Spacebar]** twice, then type **<TR>**
<TR> marks the start of a row.

6. Click to the left of the text **Tour Name**, press **[Spacebar]** four times, type **<TH>**, then repeat this step for the two lines of text that follow
<TH> marks the text that follows it as the contents of a cell, and applies the header format.

7. Click the blank line below the last <TH> tag you added, press **[Spacebar]** twice, type **</TR>**, then press **[Enter]** twice

8. Add a **<TR>** tag indented two spaces, indent the three items that follow with four spaces and add the **<TD>** tag before each one, add the closing **</TR>** tag indented two spaces, then repeat this step for the remaining groups of cells
Your Web document should resemble the one shown in Figure E-3.

9. Save your work, start your Web browser, cancel any dial-up activities, then open the file **nomad-e.htm**
The data appears in a table of three columns and seven rows, as shown in Figure E-4.

```
HSPACE="20" ALT="Nomad Ltd">
<H2>A guide to</H2>
<H1>Nomad Ltd Tours</H1>

<TABLE BORDER>
   <TR>
     <TH>Tour Name
     <TH>Length
     <TH>Theme
   </TR>

   <TR>
     <TD><A HREF="construction.htm">Soccer Safari</A>
     <TD>15 days
     <TD>Soccer clinics and matches
   </TR>

   <TR>
     <TD><A HREF="construction.htm">Basking in Baseball</A>
     <TD>9 days
     <TD>Baseball training camps
   </TR>

   <TR>
     <TD><A HREF="construction.htm">Viva Voce</A>
     <TD>15 days
     <TD>Famous operahouses
```

Opening and
closing
<TABLE> tags

```
     <TD>Famous operahouses
   </TR>

   <TR>
     <TD><A HREF="construction.htm">Theater Troupe</A>
     <TD>9 days
     <TD>Country theater festivals
   </TR>

   <TR>
     <TD><A HREF="construction.htm">Country Escape</A>
     <TD>8 days
     <TD>Retreats in the countryside
   </TR>

   <TR>
     <TD><A HREF="construction.htm">Urban Oases</A>
     <TD>10 days
     <TD>Resorts in major cities
   </TR>
</TABLE>

<H5>updated August 24, 2002</H5>

</FONT>
</BODY>
</HTML>
```

FIGURE E-4: Web page containing table

A guide to

Nomad Ltd

Nomad Ltd Tours

Heading row
text boldface
and centered

Tour Name	Length	Theme
Soccer Safari	15 days	Soccer clinics and matches
Basking in Baseball	9 days	Baseball training camps
Viva Voce	15 days	Famous opera houses
Theater Troupe	9 days	Country theater festivals
Country Escape	8 days	Retreats in the countryside
Urban Oases	10 days	Resorts in major cities

BORDER attribute
adds borders
around all cells

updated August 24, 2002

TABLE E-1: HTML table tags

tag(s)	function
<TABLE>..</TABLE>	define start and end of table contents
<TR>..</TR>	mark contents of each table row
<TH>	marks contents that follow as a table cell, and applies header format
<TD>	marks contents that follow as a standard table cell
<CAPTION>..</CAPTION>	formats text to appear as a caption, centered above the table; can appear anywhere within the <TABLE>..</TABLE> tag pair

Spanning Rows

A basic table contains cells of data arranged in columns and rows. However, sometimes the contents of a cell apply to more than one row or column. You can mark a single cell to be part of multiple rows or columns—known as **spanning**—by using attributes in the <TH> or <TD> tags. Table E-2 explains these attributes, ROWSPAN and COLSPAN. ✒ Nomad Ltd tours are divided into three categories: athlete, arts, and leisure. Jaime wants to add a table column that shows the category of each tour. Since two of the tours belong to each category, each category cell will span two rows.

Steps 1 2 3 4

1. In your text editor, click to the right of the <TR> tag for the column heading section, press **[Enter]**, press **[Spacebar]** four times, then type **<TH>Tour Category**
   This code adds the header cell for the new column.

2. Click to the right of the <TR> tag above the text Soccer Safari, press **[Enter]**, press **[Spacebar]** four times, then type **<TD ROWSPAN="2"><IMG SRC="images/athlete.gif" WIDTH="203" HEIGHT="116" ALT="athlete">**
   This code adds the tour category cell that aligns with the first two rows of data. Instead of text, Jaime uses an <IMG> tag as the cell contents. The tag references a logo graphic for the athlete tours. Jaime received the graphic from the marketing department.

3. Click to the right of the <TR> tag above the text **Viva Voce**, press **[Enter]**, press **[Spacebar]** four times, then type **<TD ROWSPAN="2"><IMG SRC="images/arts.gif" WIDTH="202" HEIGHT="121" ALT="Arts">**

4. Click to the right of the <TR> tag above the text Country Escape, press **[Enter]**, press **[Spacebar]** four times, then type **<TD ROWSPAN="2"><IMG SRC="images/leisure.gif" WIDTH="197" HEIGHT="124" ALT="Leisure">**
   Your Web document should resemble the one shown in Figure E-6.

5. Save your file **nomad-e.htm** as a text document

6. Click the **browser program button** on the taskbar, then reload **nomad-e.htm**
   As shown in Figure E-7, each graphic logo for the three tour types appears in a cell in the new column on the left edge of the table. Each cell spans two rows.

CLUES TO USE

Spanning Columns

The process of spanning table columns is very similar to spanning rows. Instead of using the ROWSPAN attribute in a <TH> or <TD> tag, you use COLSPAN. One of the most popular uses of spanned columns is to display a two-level column head, as shown in Figure E-5.

FIGURE E-5: Web page table containing spanned columns

Average Temperatures for Selected World Cities

City	January		July	
	Minimum (°F)	Maximum (°F)	Minimum (°F)	Maximum (°F)
Accra, Ghana	87	73	81	73
Amsterdam, Netherlands	40	34	69	59
Athens, Greece	54	42	90	72
Auckland, New Zealand	73	60	56	46
Baghdad, Iraq	60	39	110	76

```
<H1>Nomad Ltd Tours</H1>

<TABLE BORDER>
   <TR>
     <TH>Tour Category
     <TH>Tour Name
     <TH>Length
     <TH>Theme
   </TR>

   <TR>
     <TD ROWSPAN="2"><IMG SRC="images/athlete.gif" WIDTH="203" HEIGHT="116"
ALT="athlete">
     <TD><A HREF="construction.htm">Soccer Safari</A>
     <TD>15 days
     <TD>Soccer clinics and matches
   </TR>

   <TR>
     <TD><A HREF="construction.htm">Basking in Baseball</A>
     <TD>9 days
     <TD>Baseball training camps
   </TR>

   <TR>
     <TD ROWSPAN="2"><IMG SRC="images/arts.gif" WIDTH=
ALT="Arts">
```

Code for header cell for
new column

Tags for cells in
new column use
ROWSPAN
attribute

```
ALT="Arts">
     <TD><A HREF="construction.htm">Viva Voce</A>
     <TD>15 days
     <TD>Famous operahouses
   </TR>

   <TR>
     <TD><A HREF="construction.htm">Theater Troupe</A>
     <TD>9 days
     <TD>Country theater festivals
   </TR>

   <TR>
     <TD ROWSPAN="2"><IMG SRC="images/leisure.gif" WIDTH="197" HEIGHT="124"
ALT="Leisure">
     <TD><A HREF="construction.htm">Country Escape</A>
     <TD>8 days
     <TD>Retreats in the countryside
   </TR>

   <TR>
     <TD><A HREF="construction.htm">Urban Oases</A>
     <TD>10 days
     <TD>Resorts in major cities
   </TR>
</TABLE>
```

FIGURE E-7: Web page table containing spanned rows

New column added

Each new cell spans two rows

Tour Category	Tour Name	Length	Theme
ATHLETE Travel, relax, and play! Watch and take part in various sports.	Soccer Safari	15 days	Soccer clinics and matches
	Basking in Baseball	9 days	Baseball training camps
Arts Experience the world's traditional performing arts at their sources.	Viva Voce	15 days	Famous opera houses
	Theater Troupe	9 days	Country theater festivals
Leisure Relax and rejuvenate on quiet trips to secluded retreats.	Country Escape	8 days	Retreats in the countryside
	Urban Oases	10 days	Resorts in major cities

TABLE E-2: Spanning attributes

tag	attribute	description	example
<TH> or <TD>	ROWSPAN	indicates number of rows the current cell should span	<TD ROWSPAN="2">
	COLSPAN	indicates number of columns the current cell should span	<TD COLSPAN="2">

Formatting Borders

Just as you can control the arrangement of cells in a table, you also can alter the properties of the borders between cells. By assigning a value in pixels to the BORDER attribute in the <TABLE> tag, you can change the thickness of the table's outside border. This attribute also gives you minimal control over the border around each cell. When the BORDER attribute is present in the <TABLE> tag, cell borders appear as lines one pixel wide. However, if BORDER is set equal to zero, or if the attribute is not present, cells will not display any borders. Another way to affect the relationship between cells is the CELLSPACING attribute, which sets the distance in pixels between cell borders. By default, this distance is two pixels; setting it to zero gives the appearance of a single-line gridwork dividing cells, while higher number settings increase the blank area on all sides of cells. Table E-3 summarizes border attributes. ➤ Jaime wants to customize the look of his table to fit its contents. He starts by formatting the table and cell borders.

Steps 1 2 3 4

1. In your text editor, click to the right of BORDER in the <TABLE> tag, then type **="5"**
Jaime originally entered the BORDER attribute without a value, which turned on the display of cell borders and added a table border with the default value of one pixel. Setting the BORDER attribute to a larger value allows you to see how the table looks with a thicker border.

2. Save your work

3. Click the **browser program button** on the taskbar, then reload **nomad-e.htm**
The table's outside border appears thicker, as shown in Figure E-8. This thickness makes the border's three-dimensional effect more noticeable.

4. Click the **text editor program button** on the taskbar, select **="5"** in the <TABLE> tag, then press **[Delete]**
Jaime prefers the small default table border size.

5. Click to the right of BORDER in the <TABLE> tag, press **[Spacebar]**, then type **CELLSPACING="0"**
Figure E-9 shows the completed code for the table and cell borders. Setting the CELLSPACING attribute equal to zero removes the blank space between the cell borders.

6. Save your work, click the **browser program button** on the taskbar, then reload **nomad-e.htm**
As shown in Figure E-10, the cell and table borders are the same width, and appear as a grid of single lines.

TABLE E-3: Table and cell border attributes

tag	attribute	description	default value	example
<TABLE>	BORDER	adds borders around the table and each cell; optional value determines thickness of table border	1 px (if attribute is specified without a value)	<TABLE BORDER="5">
	CELLSPACING	determines gap between borders of adjacent cells	2 px (if attribute is not specified)	<TABLE CELLSPACING="0">

Outer table border thickened by BORDER value

Tour Category	Tour Name	Length	Theme
ATHLETE — Travel, relax, and play! Watch and take part in various sports.	Soccer Safari	15 days	Soccer clinics and matches
	Basking in Baseball	9 days	Baseball training camps
Arts — Experience the world's traditional performing arts at their sources.	Viva Voce	15 days	Famous operahouses
	Theater Troupe	9 days	Country theater festivals
Leisure — Relax and rejuvenate on quiet trips to secluded retreats.	Country Escape	8 days	Retreats in the countryside
	Urban Oases	10 days	Resorts in major cities

FIGURE E-9: Web document containing border formatting

Valueless BORDER attribute defaults to 1-pixel table border

```
<H1>Nomad Ltd Tours</H1>

<TABLE BORDER CELLSPACING="0">
  <TR>
    <TH>Tour Category
    <TH>Tour Name
```

CELLSPACING setting removes empty space between adjacent cells

FIGURE E-10: Web page table with cellspacing removed

Table border displays at default thickness

Tour Category	Tour Name	Length	Theme
ATHLETE — Travel, relax, and play! Watch and take part in various sports.	Soccer Safari	15 days	Soccer clinics and matches
	Basking in Baseball	9 days	Baseball training camps
Arts — Experience the world's traditional performing arts at their sources.	Viva Voce	15 days	Famous operahouses
	Theater Troupe	9 days	Country theater festivals
Leisure — Relax and rejuvenate on quiet trips to secluded retreats.	Country Escape	8 days	Retreats in the countryside
	Urban Oases	10 days	Resorts in major cities

Space removed between cell borders

HTML

Modifying Table Backgrounds

By default, table cells are transparent, and the background color or image for the rest of the Web page also appears as the table background. However, you can use the BGCOLOR attribute to assign a background color to a cell, a row, or the entire table. Depending on what part of the table you want to format, you can add the BGCOLOR attribute to the appropriate tag or tags—<TH>, <TD>, <TR>, or <TABLE>—and set the attribute's value to the color's hexadecimal equivalent. As with other Web page elements, it's important to use table background color sparingly and judiciously to enhance your page, rather than overwhelm it. ✎ Jaime wants to color-code the rows in his table to make it easier to distinguish which tours are part of each category. He has looked up hexadecimal equivalents for subtle colors that match each category's logo.

Steps 1234

1. In your text editor, click to the right of TR in the <TR> tag for the header row, press **[Spacebar]**, then type **BGCOLOR="#CC8800"**
   Including the BGCOLOR attribute in a <TR> tag sets the background color for all cells in that row. For the header row, Jaime selected the same color used in the Nomad Ltd logo at the top of the Web page.

2. Click to the right of TR in the <TR> tag for the row containing the Soccer Safari information, press **[Spacebar]**, then type **BGCOLOR="#93DB50"**
   For this row, Jaime selected a green color that matches the Athlete tour category logo.

3. Repeat Step 2 for the row containing the Basking in Baseball information

4. Click to the right of TR in the <TR> tag for the row containing the Viva Voce information, press **[Spacebar]**, then type **BGCOLOR="#DB7093"**
   The background color for this row is a shade of red that matches the associated category logo.

5. Repeat Step 4 for the row containing the Theater Troupe information

6. Click to the right of TR in the <TR> tag for the row containing the Country Escape information, press **[Spacebar]**, then type **BGCOLOR="#8F8FBD"**
   This row will display a blue background that matches the Leisure tour category logo.

7. Repeat Step 6 for the row containing the Urban Oases information

8. Click to the right of the text BODY in the <BODY> tag, press **[Spacebar]**, then type **LINK="#000000" VLINK="#2F4F4F" ALINK="#2F4F4F"**
   Jaime wants to make sure the link text is visible on the new background colors, so he changes the default link text color to black, and changes the color of previously viewed and active links to dark gray. Figure E-11 shows the completed code for the table row background and link text colors.

Trouble?

If you previously clicked any of the links in the table, the link text appears as dark gray rather than black.

9. Save your work, click the **browser program button** on the taskbar, then reload **nomad-e.htm**
   As shown in Figure E-12, the header row background is a light brown color that Jaime selected to match the corporate logo. The backgrounds for the other six rows match the colors in their associated tour category logos, allowing readers to easily identify which tours belong to each category. Jaime made sure the table text would remain legible by selecting light background shades that contrast with the default black font color.

```
<BODY LINK="#000000" VLINK="#2F4F4F" ALINK="#2F4F4F">
<FONT FACE="arial, helvetica, sans serif">

<IMG SRC="images/nomad.gif" HEIGHT="63" WIDTH="201" ALIGN="left" VSPACE="20"
HSPACE="20" ALT="Nomad Ltd">
<H2>A guide to</H2>
<H1>Nomad Ltd Tours</H1>

<TABLE BORDER CELLSPACING="0">
   <TR BGCOLOR="#CC8800">
      <TH>Tour Category
      <TH>Tour Name
      <TH>Length
      <TH>Theme
   </TR>

   <TR BGCOLOR="#93DB50">
      <TD ROWSPAN="2"><IMG SRC="images/athlete.gif" WIDTH="203" HEIGHT="116"
ALT="athlete">
      <TD><A HREF="construction.htm">Soccer Safari</A>
      <TD>15 days
      <TD>Soccer clinics and matches
   </TR>

   <TR BGCOLOR="#93DB50">
      <TD><A HREF="construction.htm">Basking in Baseball</A>
      <TD>9 days
```

Link color attributes added to <BODY> tag

BGCOLOR attribute added to each <TR> tag

```
      <TD>9 days
      <TD>Baseball training camps
   </TR>

<TR BGCOLOR="#DB7093">
   <TD ROWSPAN="2"><IMG SRC="images/arts.gif" WIDTH="202" HEIGHT="121"
ALT="Arts">
   <TD><A HREF="construction.htm">Viva Voce</A>
   <TD>15 days
   <TD>Famous operahouses
</TR>

<TR BGCOLOR="#DB7093">
   <TD><A HREF="construction.htm">Theater Troupe</A>
   <TD>9 days
   <TD>Country theater festivals
</TR>

<TR BGCOLOR="#8F8FBD">
   <TD ROWSPAN="2"><IMG SRC="images/leisure.gif" WIDTH="197" HEIGHT="124"
ALT="Leisure">
   <TD><A HREF="construction.htm">Country Escape</A>
   <TD>8 days
   <TD>Retreats in the countryside
</TR>

<TR BGCOLOR="#8F8FBD">
```

FIGURE E-12: Web page containing background colors

Background colors assigned by row

Background color shows through transparent section of each graphic

Tour Category	Tour Name	Length	Theme
ATHLETE — Travel, relax, and play! Watch and take part in various sports.	Soccer Safari	15 days	Soccer clinics and matches
	Basking in Baseball	9 days	Baseball training camps
Arts — Experience the world's traditional performing arts at their sources.	Viva Voce	15 days	Famous operahouses
	Theater Troupe	9 days	Country theater festivals
Leisure — Relax and rejuvenate on quiet trips to secluded retreats.	Country Escape	8 days	Retreats in the countryside
	Urban Oases	10 days	Resorts in major cities

Unclicked link text appears in black

CLUES TO USE

Adding a background image to a table

In addition to the BGCOLOR attribute, Internet Explorer and the most recent versions of Navigator support the BACKGROUND attribute for the <TABLE>, <TH>, and <TD> tags. The BACKGROUND attribute allows you to specify a background image for the table or for specific table cells, as shown in Figure E-13. The <TR> tag does not support this attribute, so you can't apply background images row-by-row. The BACKGROUND attribute is not supported for any table tags in most versions of Navigator. Therefore, you should implement this attribute only if you are certain that everyone using your page will view it with Internet Explorer or one of the most recent Navigator versions, or if the page's layout and readability will not be compromised when the background image does not appear.

FIGURE E-13: Web page table using a background graphic

Bush	Type	Height	Fruit maturity	Yield per bush	Berry size	Berries per cup
Blue Ray	high	4-6 ft.	mid/late July	10-20 lb.	large	60
Blue Jay	high	5-7 ft.	late July	7-10 lb.	small/ medium	110
Jersey	high	5-7 ft.	late July	7-10 lb.	small/ medium	110
Elliott	high	5-7 ft.	late Aug./early Sept.	10-20 lb	small/ medium	75
Northland	medium	3-4 ft.	early July	15-20	small	135

Changing Table Dimensions

As with other Web page elements, you can customize the dimensions of a table and of table cells using the HEIGHT and WIDTH attributes. The <TABLE>, <TH>, and <TD> tags support these attributes for setting minimum dimensions in pixels. In addition, these attributes allow measurements in percentages. For the <TABLE> tag, the browser calculates these dimensions as a percentage of the browser window size. For example, <TABLE WIDTH="90%"> widens the table, if necessary, to occupy 90% of the width of the user's browser window. The browser bases percentage dimensions for the <TH> and <TD> tags on the size of the table; the code <TD HEIGHT="10%"> causes the browser to make the cell taller, if necessary, so it takes up 10% of the overall height of the table. Because all the cells in a row will display at the same height, and all the cells in a column will display at the same width, you need to specify height or width for only one cell in order to change the dimension for the entire row or column. The <TABLE> tag supports one other attribute that affects table and cell dimensions: CELLPADDING. This attribute sets a cushion of blank space around the contents of every cell; that space is one pixel wide by default. Adding CELLPADDING usually increases the height and width of cells because they have to accommodate the blank padding space, in addition to the existing cell contents. Table E-4 summarizes the attributes for changing table dimensions. ✎ Jaime wants to test the effect of setting the table's width to a percentage of screen size. He also wants to make the table contents easier to read by adding cellpadding.

Steps 1 2 3 4

1. In your text editor, click to the right of the text TABLE in the <TABLE> tag, press **[Spacebar]**, then type **WIDTH="100%"**

Jaime wants to see how the page layout looks if the table always occupies the entire width of the window.

2. Save your work, click the **browser program button** on the taskbar, then reload **nomad-e.htm**

Figure E-14 shows the table, including the WIDTH attribute. Figure E-15 shows the page on a large, high-resolution monitor, where the table is noticeably widened to take up more horizontal distance. The table cells include more empty space to make up the extra width.

3. In your text editor, select the text **WIDTH="100%"** in the <TABLE> tag, press **[Delete]**, then, if necessary, press **[Delete]** again to remove the extra space

Although he liked the effect of the WIDTH setting on the computer monitor at his desk, Jaime views the table with the new WIDTH setting at different screen sizes and resolutions and finds that the setting can detract from the page layout on large, high-resolution screens. Jaime decides that the Web page layout would look best to the widest possible audience if he positions the table at the default left-aligned position in the window.

4. Click to the right of the text TABLE in the <TABLE> tag, press **[Spacebar]**, then type **CELLPADDING="5"**

5. Save your work, click the **browser program button** on the taskbar, then reload **nomad-e.htm**

As shown in Figure E-16, the cell contents are surrounded by five pixels of space on all four sides. Jaime thinks this change makes the table contents easier to read.

Table extends to right border, occupying full width of browser window

Cells include extra blank space in order to widen table

FIGURE E-16: Web page table including CELLPADDING attribute

CELLPADDING attribute adds space between cell contents and cell borders

Removal of WIDTH attribute restores empty margin

TABLE E-4: Table dimension attributes

tag(s)	attribute	valid options	function
<TABLE>	WIDTH	value in pixels percentage	specifies fixed width of table specifies width of table as a percentage of browser window width
	HEIGHT	value in pixels percentage	specifies fixed height of table specifies height of table as a percentage of browser window height
	CELLPADDING	value in pixels	specifies thickness of empty zone surrounding contents of each cell
<TH> and <TD>	WIDTH	value in pixels percentage	specifies fixed width of cell, and applies to entire column specifies width of cell as a percentage of table width
	HEIGHT	value in pixels percentage	specifies fixed height of cell, and applies to entire row specifies height of cell as a percentage of table height

HTML

Aligning Table Contents

As when setting table backgrounds and dimensions, customizing the horizontal alignment of a table and its contents uses an attribute common to many Web page elements—the ALIGN attribute. While the ALIGN value in the <TR>, <TH>, and <TD> tags determines the alignment of row or cell contents within the cell borders, the ALIGN setting in the <TABLE> tag affects the horizontal alignment of the table as a whole within the Web page. The row and cell tags also support a second alignment attribute: VALIGN. This attribute determines the position of cell contents relative to the top and bottom borders. You can align cell contents flush with the top or bottom border, or center the contents between the two borders. Table E-5 explains the two alignment attributes for tables, and includes their permitted values. ▰▰▰ By default, all table contents are vertically centered and, except for header cells, aligned with the left edge of the cell. These defaults work well for all of the data in Jaime's table except the graphics, which would look better if centered horizontally. He also wants to experiment with the table's alignment within the page.

Steps 1234

1. In your text editor, click to the right of the word TABLE in the <TABLE> tag, press **[Spacebar]**, then type **ALIGN="center"**
The ALIGN attribute in the <TABLE> tag sets the table's horizontal alignment within the browser window.

2. Locate the <TD> tag for the cell containing the graphic athlete.gif, click to the right of TD, press **[Spacebar]**, then type **ALIGN="center"**

3. Locate the <TD> tag for the cell containing the graphic arts.gif, click to the right of TD, press **[Spacebar]**, then type **ALIGN="center"**

4. Locate the <TD> tag for the cell containing the graphic leisure.gif, click to the right of TD, press **[Spacebar]**, then type **ALIGN="center"**
Your Web document should resemble the one shown in Figure E-17.

5. Save your work, click the **browser program button** on the taskbar, then reload **nomad-e.htm**
As Figure E-18 shows, the table is centered between the left and right edges of the browser window. Each of the logo graphics also is centered between its left and right cell borders. Because each graphic fits its cell almost exactly, the effect is almost unnoticeable except for the Leisure logo. Depending on the size and resolution of your screen, the centered table may appear in a different part of the screen relative to the other page elements.

6. In your text editor, select the text **ALIGN="center"** in the <TABLE> tag, press **[Delete]**, then if necessary, press **[Delete]** again to remove the extra space
After viewing the centered table at different screen sizes and resolutions, Jaime decides that the layout would look best with the table at the default left-aligned position in the window, to match the standardized left alignment of the heading section.

7. Save your work, click the **browser program button** on the taskbar, then reload **nomad-e.htm**

```
<H1>Nomad Ltd Tours</H1>

<TABLE ALIGN="center" CELLPADDING="5" BORDER CELLSPACING="0">
   <TR BGCOLOR="#CC8800">
      <TH>Tour Category
      <TH>Tour Name
      <TH>Length
      <TH>Theme
   </TR>

   <TR BGCOLOR="#93DB50">
      <TD ALIGN="center" ROWSPAN="2"><IMG SRC="images/athlete.gif" WIDTH="203"
HEIGHT="116" ALT="athlete">
      <TD><A HREF="construction.htm">Soccer Safari</A>
      <TD>5 days
      <TD>Soccer clinics and matches
   </TR>

   <TR BGCOLOR="#93DB50">
      <TD><A HREF="construction.htm">Basking in Bas
      <TD>9 days
      <TD>Baseball training camps
   </TR>

   <TR BGCOLOR="#DB7093">
      <TD ALIGN="center" ROWSPAN="2"><IMG SRC="imag
HEIGHT="121" ALT="Arts">
```

ALIGN attribute in <TABLE> tag sets table position in Web page

ALIGN attributes in <TD> tags set position of cell contents

```
HEIGHT="121" ALT="Arts">
      <TD><A HREF="construction.htm">Viva Voce</A>
      <TD>15 days
      <TD>Famous operahouses
   </TR>

   <TR BGCOLOR="#DB7093">
      <TD><A HREF="construction.htm">Theater Troupe</A>
      <TD>9 days
      <TD>Country theater festivals
   </TR>

   <TR BGCOLOR="#8F8FBD">
      <TD ALIGN="center" ROWSPAN="2"><IMG SRC="images/leisure.gif" WIDTH="197"
HEIGHT="124" ALT="Leisure">
      <TD><A HREF="construction.htm">Country Escape</A>
      <TD>8 days
      <TD>Retreats in the countryside
```

FIGURE E-18: Web page table centered in browser window and containing centered contents

Blank space to left and right of table is equal

Logo graphics centered horizontally within cells

Tour Category	Tour Name	Length	Theme
ATHLETE — Travel, relax, and play! Watch and take part in various sports.	Soccer Safari	15 days	Soccer clinics and matches
	Basking in Baseball	9 days	Baseball training camps
Arts — Experience the world's traditional performing arts at their sources.	Viva Voce	15 days	Famous operahouses
	Theater Troupe	9 days	Country theater festivals
Leisure — Relax and rejuvenate on quiet trips to secluded retreats.	Country Escape	8 days	Retreats in the countryside
	Urban Oases	10 days	Resorts in major cities

TABLE E-5: Table alignment attributes

tag	attribute	function	valid options (default value)
<TABLE>	ALIGN	sets horizontal position of table within browser window	(left), center, right
<TR> and <TD>	ALIGN	sets horizontal position of cell contents between left and right borders	(left), center, right
	VALIGN	sets vertical position of cell contents between top and bottom borders	top, (center), bottom
<TH>	ALIGN	sets horizontal position of cell contents between left and right borders	left, (center), right
	VALIGN	sets vertical position of cell contents between top and bottom borders	top, (center), bottom

Positioning Page Elements

Although tables were originally developed to display data in a grid, designers have found other innovative uses for them. One of the most popular uses of tables is to create layouts that HTML does not otherwise support. For example, basic HTML codes do not allow you to position elements in specific locations in the window. However, by placing elements in a table that does not display any borders, and adding blank cells of fixed widths, you can position the table contents anywhere on the page. Jaime wants to more precisely position the elements in the Web page's heading section. He decides to redo the section's layout using a borderless table.

Steps 1 2 3 4

1. In your text editor, click in the blank line above the <IMG> tag for the graphic nomad.gif, press **[Enter]**, type **<TABLE>**, press **[Enter]**, press **[Spacebar]** twice, then type **<TR>**
When the BORDER attribute is absent from the <TABLE> tag, the table appears without table or cell borders.

2. Click to the left of the <IMG> tag for the graphic nomad.gif, press **[Spacebar]** four times, type **<TD>**, click to the right of the > at the end of the <IMG> tag, then press **[Enter]**

3. Press **[Spacebar]** four times, then type **<TD><FONT FACE="arial, helvetica, sans serif">**
Jaime adds a <FONT> tag because a Web page's font settings do not affect the contents of a table.

4. Click to the left of the <H2> tag, press **[Spacebar]** six times, click to the left of the <H1> tag, then press **[Spacebar]** six times, click in the blank line below the <H1> heading, press **[Spacebar]** twice, type **</TR>**, press **[Enter]**, type **</TABLE>**, then press **[Enter]**
Figure E-19 shows the Web document containing the code for the borderless table.

5. Save your work, click the **browser program button** on the taskbar, then reload **nomad-e.htm**
The logo and headings appear almost exactly as they did without the table in place.

6. In your text editor, click to the right of TD in the first <TD> tag for the new table, press **[Spacebar]**, then type **VALIGN="top" WIDTH="240"**
This code positions the cell contents—the logo graphic—flush with the top of the cell. It also makes the cell wider than the graphic, which adds space between the logo and the text.

7. Locate the <IMG> tag for the graphic nomad.gif, select the text **VSPACE="20" HSPACE="20"**, press **[Delete]**, then, if necessary, press **[Delete]** again to remove the extra space
Jaime wants the logo in the upper-left corner of the browser window.

8. Click to the right of TD in the <TD> tag for the headings, press **[Spacebar]**, then type **VALIGN="bottom" HEIGHT="140" ALIGN="center"**
This code aligns the cell contents flush with the bottom of the cell, and increases the cell height so it's larger than the two headings. Jaime planned these settings so the top heading aligns with the middle of the logo.

9. Save your work, click the **browser program button** on the taskbar, then reload **nomad-e.htm**
As shown in Figure E-20, the logo graphic is in the upper-left corner of the window, and the headings are center-aligned with each other, but positioned to the right of the logo.

FIGURE E-19: Web document containing code for borderless table

Table code
added to
page heading
elements

```
<BODY LINK="#000000" VLINK="#2F4F4F" ALINK="#2F4F4F">
<FONT FACE="arial, helvetica, sans serif">

<TABLE>
  <TR>
    <TD><IMG SRC="images/nomad.gif" HEIGHT="63" WIDTH="201" ALIGN="left"
VSPACE="20" HSPACE="20" ALT="Nomad Ltd">
    <TD><FONT FACE="arial, helvetica, sans serif">
      <H2>A guide to</H2>
      <H1>Nomad Ltd Tours</H1>
  </TR>
</TABLE>

<TABLE CELLPADDING="5" BORDER CELLSPACING="0">
  <TR BGCOLOR="#CC8800">
```

FIGURE E-20: Web page including borderless table

Logo near
upper-left
edges of
window

Heading text
centered
within table
cell, not
within
browser
window

A guide to

Nomad Ltd Tours

Tour Category	Tour Name	Length	Theme
ATHLETE	Soccer Safari	15 days	Soccer clinics and matches

Practice

▶ Concepts Review

Name the function of each tag and attribute marked in Figure E-21.

```
<TABLE ALIGN="center" CELLPADDING="5" BORDER CELLSPACING="0">
<TR BGCOLOR="#CC8800">
    <TH>Tour Category
    <TH>Tour Name
    <TH>Length
    <TH>Theme
</TR>

<TR BGCOLOR="#93DB50">
    <TD ALIGN="center" ROWSPAN="2"><IMG SRC="images/athlete.gif" WIDTH="203"
HEIGHT="116" ALT="athlete">
    <TD><A HREF="construction.htm">Soccer Safari</A>
    <TD>15 days
    <TD>Soccer clinics and matches
</TR>

<TR BGCOLOR="#93DB50">
    <TD><A HREF="construction.htm">Basking in Baseball</A>
    <TD>9 days
    <TD>Baseball training camps
</TR>

<TR BGCOLOR="#DB7093">
    <TD ALIGN="center" ROWSPAN="2"><IMG SRC="images/arts.gif" WIDTH="202"
HEIGHT="121" ALT="Arts">
```

Callouts: 1, 2, 3, 4, 5, 6

Match each Web page feature with the tag or attribute you use to create it.

7. Cell that spans multiple rows
8. Empty area around cell contents
9. Table header cell
10. Background color
11. Table row
12. Standard table data cell

a. CELLPADDING
b. BGCOLOR
c. <TH>
d. <TR>..</TR>
e. <TD>
f. ROWSPAN

Select the best answer from the list of choices.

13. **Which one of the following attributes controls the gap between the borders of adjacent cells?**
    a. ROWSPAN
    b. CELLPADDING
    c. VALIGN
    d. CELLSPACING

14. **Which one of the following attributes controls the vertical alignment of the cell contents?**
    a. ROWSPAN
    b. CELLPADDING
    c. VALIGN
    d. CELLSPACING

15. **Which one of the following attributes creates a cell that spans multiple rows?**
    a. ROWSPAN
    b. WIDTH
    c. VALIGN
    d. CELLSPACING

16. **A single horizontal line of data is called a**
    a. Table.
    b. Row.
    c. Column.
    d. Cell.

17. **A single vertical line of data is called a**
    a. Table.
    b. Row.
    c. Column.
    d. Cell.

18. **Which one of the following tags supports the CELLPADDING attribute?**
    a. <TABLE>
    b. <TR>
    c. <TH>
    d. <TD>

19. Which one of the following tags marks the contents of a header cell?

 a. <TABLE>

 b. <TR>

 c. <TH>

 d. <TD>

20. A percentage value for the WIDTH attribute in the <TABLE> tag specifies the width of the table as a percentage of the

 a. Overall table width.

 b. Browser window width.

 c. Width of the widest column.

 d. Width of the left-most column.

21. A percentage value for the WIDTH attribute in a <TH> or <TD> tag specifies the width of the column as a percentage of the

 a. Overall table width.

 b. Browser window width.

 c. Width of the widest column.

 d. Width of the left-most column.

▶ Skills Review

1. Create a simple table.

 a. In your text editor, open the file HTM E-3.htm, then save it as a text document with the filename travel-e.htm.

 b. Replace the tag <!-- with "<TABLE BORDER>", then replace the //--> tag with "</TABLE>".

 c. Insert a blank line above the text "Destination", then insert two spaces and the <TR> tag on this line.

 d. Before the text "Destination" insert four spaces and the <TH> tag, then repeat for the text "Location".

 e. Insert a blank line below the text "Location", then insert two spaces and the closing </TR> tag on this line.

 f. Insert a blank line above the first line beginning with <A HREF...>, then insert two spaces and the <TR> tag on this line.

 g. In the next line, insert four spaces and the <TD> tag before the <A> tag, then in the next line, insert four spaces and the <TD> tag before the text "California".

 h. Insert a blank line below the text "California", then insert two spaces and the </TR> tag.

 i. Repeat steps f through h for the remaining six sets of table row data.

 j. Save your work, start your Web browser, cancel any dial-up activities, then open the file travel-e.htm.

2. Span rows.

 a. In your text editor, insert a line above the closing </TR> tag for the column heading section, then insert four spaces and type "<TH>Activity" on this line.

 b. Insert a blank line below the text "California" in the first data row, then insert four spaces and type "<TD ROWSPAN="3">Hiking" on this line.

    c. Insert a blank line below the text "California" in the fourth data row, then insert four spaces and type "<TD ROWSPAN="2">Swimming/Boating" on this line.

    d. Insert a blank line below the text "Utah" in the sixth data row, then insert four spaces and type "<TD ROWSPAN="2">Mountain biking" on this line.

    e. Save your file travel-e.htm as a text document, then reload travel-e.htm in your browser.

3. **Format borders.**

    a. In your text editor, add the CELLSPACING attribute with a value of "0" to the <TABLE> tag.

    b. Save your work, then reload travel-e.htm in your browser.

4. **Modify table background.**

    a. In your text editor, add the BGCOLOR attribute with a value of "#F5F5DC" to the <TABLE> tag.

    b. Add the BGCOLOR attribute with a value of "#8F8FBD" to the <TR> tag of the header row.

    c. Save your work, then reload travel-e.htm in your browser.

5. **Change table dimensions.**

    a. In your text editor, add the CELLPADDING attribute with a value of "5" to the <TABLE> tag.

    b. Save your work, then reload travel-e.htm in your browser.

6. **Align table contents.**

    a. In your text editor, add the ALIGN attribute with a value of "center" to the <TD> for the text "Hiking" in the first data row.

    b. Repeat step a for the cells containing the text "Swimming/Boating" in the fourth row, and the text "Mountain biking" in the sixth row.

    c. Save your work, then reload travel-e.htm in your browser.

7. **Position page elements.**

    a. In your text editor, insert a blank line above the <IMG> tag for the graphic nomad.gif, then enter the <TABLE> tag on this line.

    b. Insert a blank line below the <TABLE> tag, then insert two spaces and the <TR> tag on this line.

    c. At the beginning of the line containing the <IMG> tag, insert four spaces followed by the <TD> tag, including the attributes VALIGN with a value of "top", and WIDTH with a value of "220".

    d. At the beginning of the line starting with the <H2> tag, insert four spaces followed by the <TD> tag, including the attributes VALIGN with a value of "center", and HEIGHT with a value of "90".

    e. In the <FONT> tag to the right of the <H2> tag, add the FACE attribute with a value of "arial, helvetica, sans serif".

    f. Insert a blank line after the closing </H2> tag, insert two spaces and the closing </TR> tag, insert another blank line below it, then insert the </TABLE> tag.

    g. Save your work, then reload travel-e.htm in your browser.

► Independent Challenges

1. You have created a Web site for your computer consulting business, Star Dot Star. The site has already attracted new customers, and you want to expand the site to include information that would be of interest to potential customers, as well as to your existing clients. You have created a list of troubleshooting suggestions for common computer problems, and decide to add a table containing this information to your Web site.

To complete this independent challenge:

a. Open the file HTM E-4.htm in your text editor, then save it as a text document with the filename sds-e.htm.

b. Replace the <!-- and //--> tags with the opening and closing tags for a table, then format the enclosed contents as a simple table with the column headings "Problem" and "Possible solutions".

c. If there are "Possible solutions" that apply to more than one "Problem", span rows, if necessary.

d. Start your Web browser, preview the table, and fix any errors, if necessary.

e. Select one or more appropriate background colors, look up the hexadecimal codes in an HTML reference, and add the colors to the table.

f. Make any other changes to the table layout that you feel are appropriate; at minimum, use two of the following: CELLPADDING, CELLSPACING, WIDTH, HEIGHT, or BORDER="*value*".

g. If you have access to other computers with different monitor sizes and/or resolutions, use them to preview your Web page, then make layout changes, if necessary, so the table is attractive and usable when viewed on each monitor.

2. You have been setting up the Web site for Metro Water, the local water department. Now that you know how to position page elements using borderless tables, you want to create an HTML document containing only the logo and main headings. The document will serve as a template for adding new pages to the Web site.

To complete this independent challenge:

a. Open the file HTM E-5.htm in your text editor and save it as mw-e.htm.

b. Create a table with one row and two columns, containing the graphic in the first column and the two headings in the second column.

c. Remove the spacing and alignment attributes from the image tag.

d. Format the cell containing the headings so the text is centered over a wide area.

e. Format the heading fonts to match the setting for the rest of the page.

f. Start your Web browser, and preview the template, then make changes if necessary.

3. At your video store, Film Clips, you maintain an HTML-based information system for customer use. You want to add a link on the opening page that opens a table of popular rentals and new releases.

To complete this independent challenge:

a. Sketch a table incorporating at least three columns with information about 10 recent video releases; use information on movies that you are familiar with, or create fictitious information.

b. Start your text editor and create a basic Web page including the logo (fclogo.gif) and any headings and hyperlinks you think are appropriate, then save your file as fc-e.htm.

c. Create the table of films based on your sketch.

d. Save your work, start your Web browser program to preview the page, then make corrections to the code, if necessary.

e. Customize the table layout using, at minimum, three of the following attributes: BGCOLOR, CELLPADDING, CELLSPACING, WIDTH, HEIGHT, or BORDER="*value*".

f. Save and preview the page, then make final corrections if necessary.

4. Nearly all Web sites today include tables. Although certain Web pages display information in tables with gridlines, this is a relatively uncommon use of tables in Web pages. Instead, Web designers have found various uses of tables for layout, and use them frequently. Explore the HTML code of several documents on the Web to learn how tables are used in Web pages today.
To complete this independent challenge:

a. Connect to the Internet and use your browser to open the home pages for three major, well-designed Web sites. These might include technology companies, search engines, media outlets, government sites, or colleges or universities, such as the following:
hotwired.lycos.com/webmonkey/
www.sfsu.edu
www.course.com
If you have trouble locating three appropriate pages, go to www.course.com, navigate to the page for this book, click the link for the Student Online Companion, click the link for this unit, and use the links listed there as a starting point for your search.

b. After each Web page opens, click View, then click Source (or Page Source) in your browser to view the HTML code for the Web page.

c. Locate any borderless tables in the page. If the code is long, search for the tags by pressing [Ctrl][F] (Navigator) or selecting Search>Find (Internet Explorer), entering "<TABLE>", and pressing [Enter].

d. Compare the code and the Web page displayed in the browser to determine the function of the page's table(s).

e. Create a Web page with the name table-e.htm and implement a borderless table for one of the uses you identified.

▶ Visual Workshop

As part of your job at Touchstone Books, you've been setting up the store's Web site. Your latest plans include adding a table that shows the top-selling books sorted by category. Open the file HTM E-6.htm and save it as tsb-e.htm. Use your text editor to modify the document so it matches Figure E-22 when viewed in your browser. Use a structuring table for the image and headings, then add a second table to display the book information.

FIGURE E-22

Touchstone Booksellers

Top-selling books for October, 2002

Category	Author	Title
Children's	Oppenheim	*I Wuv OO, Too!*
Fiction	Al-sayed	*The Only One You'll Ever Have*
Historical	Munoz	*The 44th President*
How-to	Jordan	*Classical Guitar in 5 Minutes a Day*
Non-fiction	Conrad	*How to be Your Child's Favorite Teacher*
Self-help	Wallach	*Kick It!*
Technical	Reding and Vodnik	*HTML – Illustrated*